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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/419,968 | 10/18/1999 | SANDIP SARKAR | PA990566 | 2151 |

23696 7590 09/24/2002

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EXAMINER

SONG, HOSUK

ART UNIT PAPER NUMBER

2131

DATE MAILED: 09/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/419,968

Applicant(s)

SARKAR

Examiner

HO S. SONG

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jul 16, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al(US 4,484,027).

In claims 1,9, Lee teaches processing a received signal and extracting random data bits from processed receive signal in (fig.1,#36,34).

2. Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Epstein (US 5,517,567).

In claim 5, Epstein disclose use of a random number generator #202 as part of element #200; the wireless device. As device #202 is a part of the wireless device, the bits are generated for use by device #202 are in effect generated by the wireless device. Hence, generating a random numbers from data bits generated from existing wireless phone hardware and encryptor for encrypting a signal using said random numbers are disclosed by Epstein in (col.2, lines 61-67; col.3, lines 45-50).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2,4,10, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al.(US 4,484,027) in view of Waldroup et al.(US 6,070,058).

In claims 2,10, Lee discloses all the limitations above. Lee does not disclose step of processing received signal with a receive automatic gain control circuit(AGC). Waldroup's patent(US 6,070,058) discloses processing received signal with a receive automatic gain control circuit(AGC) in (col.9, lines 12-23). It would have been obvious to person of ordinary skill in the art at the time the invention was made to employ AGC taught in Waldroup with receiver disclosed in Lee in order to control such amplitude variations such that cellular phone or wireless device keeps in-band energy is transmitted to demodulator at a fixed level thus allowing incoming received signal to be normalized.

5. Claims 4,12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al.(US 4,484,027).

In claims 4,12, Lee discloses all the limitations above. Lee does not disclose Time Tracking Loop. The examiner takes Official notice that Time Tracking Loop is well known in the art especially in the wireless communication environment. One of ordinary skill in the art would be motivated to use Time Tracking Loop in order to track variations in the receive propagation delay over time and thus maintaining bit synchronization.

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5. Claims 6, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein.(US 5,517,567) in view of Waldroup et al.(US 6,070,058).

In claim 6, Epstein discloses all the limitations above. Epstein does not discloses step of processing received signal with a receive automatic gain control circuit(AGC). Waldroup's patent(US 6,070,058) discloses processing received signal with a receive automatic gain control circuit(AGC) in (col.9, lines 12-23). It would have been obvious to person of ordinary skill in the art at the time the invention was made to employ AGC taught in Waldroup with receiver disclosed in Epstein in order to control such amplitude variations such that cellular phone or wireless device keeps in-band energy is transmitted to demodulator at a fixed level thus allowing incoming received signal to be normalized.

In claim 8, Epstein discloses all the limitations above. Epstein does not discloses Time Tracking Loop. The examiner takes Official notice that Time Tracking Loop is well known in the art especially in the wireless communication environment. One of ordinary skill in the art would be motivated to use Time Tracking Loop in order to track variations in the receive propagation delay over time and thus maintaining bit synchronization.

6. Claims 3,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al.(US 4,484,027) in view of Lee et al(US 6,038,266).

In claims 3,11, Lee discloses all the limitations above. Lee does not discloses processing received signal with a DC Offset Correction Loop. Lee discloses DC offset correction circuit in (col.10, lines 53-55). It would have been obvious to person of ordinary skill in the art at the time

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the invention was made to employ DC offset correction circuit taught in Lee with receiver disclosed in Lee in order to prevent instability of signal as well as correcting DC offset.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein.(US 5,517,567) in view of Lee et al(US 6,038,266).

In claim 7, Epstein discloses all the limitations above. Epstein does not disclose processing received signal with a DC Offset Correction Loop. Lee discloses DC offset correction circuit in (col.10, lines 53-55). It would have been obvious to person of ordinary skill in the art at the time the invention was made to employ DC offset correction circuit taught in Lee with receiver disclosed in Epstein in order to prevent instability of signal as well as correcting DC offset.

8. Claims 13,16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein (US 5,517,567) in view of Takahashi et al.(US 5,659,618).

In claims 13,18, Epstein discloses a digital signal processing circuit for generating random data bits from the received digital signal and an encryptor for encrypting a transmitted signal in (col.2, lines 61-67; col.3, lines 45-50). Epstein does not disclose A/D converter. Takahashi discloses A/D converter to convert analog signal to digital signal in (col.3,lines 8-16). It would have been obvious to person of ordinary skill in the art at the time invention was made to employ A/D converter disclosed by Takahashi with wireless device taught in Epstein. As described in Takahashi's patent, an analog data must be converted to digital before encryption

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since encryption must be done in bits it must be converted to digital first else encrypting an analog data is not possible.

In claim 16, Epstein and Takahashi discloses all the limitations above. Epstein and Takahashi does not discloses Time Tracking Loop. The examiner takes Official notice that Time Tracking Loop is well known in the art especially in the wireless communication environment. One of ordinary skill in the art would be motivated to use Time Tracking Loop in order to track variations in the receive propagation delay over time and thus maintaining bit synchronization.

In claim 17, wireless phone is disclosed by Epstein in (col.3,lines 46-49).

In claims 19,22, Epstein and Takahashi does not disclose extracting random data bits from an AGC. The examiner takes Official notice that extracting random data bits from an AGC is well known in the art. Since one of the function of AGC is to normalize the incoming signal and gain of the variable gain amp varies continuously, one of the ordinary skill in the art would be motivated to extract random variable from the AGC.

In claims 20,23, Epstein and Takahashi does not disclose extracting random data bits from a DC Offset Correction Loop. The examiner takes Official notice that extracting random data bits from a DC Offset Correction Loop is well known. One of ordinary skill in the art would be motivated to extract random variable from DC Offset Correction Loop because of continuous variation of DC offset.

In claim 21,24, Epstein and Takahashi does not disclose extracting random data bits from a Time Tracking Loop. The examiner takes Official notice that extracting random data bits from

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a Time Tracking Loop is well known. Because of propagation path delay varies randomly. One of ordinary skill in the art would be motivated to extract random variable from Time Tracking Loop

9. Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein.(US 5,517,567) in view of Takahashi et al.(US 5,659,618) and further in view of Waldroup et al.(US 6,070,058).

In claim 14, Epstein and Takahashi discloses all the limitation above. However, Epstein and Takahashi does not discloses a digital signal processing circuit comprises an automatic gain controller. Waldroup's patent(US 6,070,058) discloses processing received signal with a receive automatic gain control circuit(AGC) in (col.9, lines 12-23). It would have been obvious to person of ordinary skill in the art at the time the invention was made to employ AGC taught in Waldroup with receiver disclosed in Epstein/Takahashi in order to control such amplitude variations such that cellular phone or wireless device keeps in-band energy is transmitted to demodulator at a fixed level thus allowing incoming received signal to be normalized.

10. Claims 25-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menezes(Handbook of Applied Cryptography).

In claims 25-33, Menezs discloses using a hardware device including an oscillators to generate a random numbers in (pages 171-172, section 5.2). Although, Menezes does not specifically discloses generating random data and adding bit to random bits from a AGC,DC Offset Correction Loop,Time Tracking Loop. It would have been obvious to person of ordinary skill in the art to use method of fluctuating a signal or instabilizing a signal basically using a

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phase/gain to generate a random number. Menezes teaches frequency instability including an oscillators to generate a random numbers(section 5.2).

11. Claims 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein.(US 5,517,567) in view of Takahashi et al.(US 5,659,618) and further in view of Lee et al(US 6,038,266).

In claim 15, Epstein and Takahashi discloses all the limitation above. However, Epstein and Takahashi does not discloses processing received signal with a DC Offset Correction Loop. Lee discloses DC offset correction circuit in (col.10, lines 53-55). It would have been obvious to person of ordinary skill in the art at the time the invention was made to employ DC offset correction circuit taught in Lee with device disclosed in Epstein/Takahashi in order to prevent instability of signal as well as correcting DC offset.

Response to Applicant's Arguments

12 Previous rejection based on Lee et al.(US 4,484,027) , Lee et al(US 6,038,266) and Waldroup patents remain rejected.

Applicant argues that in claim 1, Lee(US 4,484,027) is not a wireless communication device **In response:**the examiner disagree. Fig.1 #36(receiver) receives wireless broadcast signal from the transmitter #26. This is in fact a wireless device to be used with the TV set. **Applicant argues that** device in Lee's patent is a cable box that sits on top of a TV connected to a coaxial cable.

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In response:the examiner disagree. No where in Lee's patent shows the receiver is a cable box that sits on top of a TV connected to a coaxial cable. The receiver(#36) may or may not connected wireless to the TV set but communication between transmitter(#26) and receiver(#36) performs wireless communication. **Applicant argues that** Lee does not teach extracting mathematically random data bits from a processed receive signal to encrypt a signal for wireless transmission. In response: claim 1 recite " A method for generating random data bits in wireless communication device, comprising the steps of : processing a received signal; and extracting said random data bits from said processed receive signal.". Encrypting a signal is not claimed in claim 1. Further, Lee specifically discloses processing a received signal in (#34) and extracting a random number(random bits) from a processed signal in (fig.1). Claim 1 remain rejected.

Applicant argues that Epstein teaches away from Applicant's claim 5 by disclosing a method for securely transferring pseudo-random encryption keys between transmitters and receivers rather than generating random numbers at a receiver by extracting truly random data from mathematically random characteristics of the received signal. **In response:** Fig.4 shows processing,generating and receiving random numbers are done in master unit. Further, Epstein disclose use of a random number generator #202 as part of element #200; the wireless device. As device #202 is a part of the wireless device, the bits are generated for use by device #202 are in effect generated by the wireless device. Hence, generating a random numbers from data bits generated from existing wireless phone hardware and encryptor for encrypting a signal using said

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random numbers are disclosed by Epstein in (col.2, lines 61-67; col.3, lines 45-50). Claim 5 remain rejected.

Previous grounds of rejection remain rejected and newly added claims 9-33 are addressed above.

Conclusion

13 **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

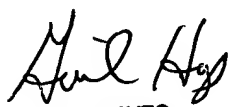
14 Any inquiry concerning this communication from the examiner should be directed to Examiner Ho S. Song at telephone number is (703)305-0042. The examiner can normally be reached on Tuesday-Friday from 6:00 am to 4:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gail Hayes, can be reached on (703)305-9711.

Any inquiry of a general or relating to the status of this application or proceeding should be directed to the Technology Center receptionist whose telephone number is (703)305-3800.

H. S.


GAIL HAYES
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100